Thinking about Progress: From Science to Philosophy

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ARTICLE

Noûs

Thinking about Progress: From Science to Philosophy

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Abstract

Is there progress in philosophy? If so, how much? Philosophers have recently argued for a wide range of answers to these questions, from the view that there is no progress whatsoever to the view that philosophy has provided answers to all the big philosophical questions. However, these views are difficult to compare and evaluate, because they rest on very different assumptions about the conditions under which philosophy would make progress. This paper looks to the comparatively mature debate about scientific progress for inspiration on how to formulate four distinct accounts of philosophical progress, in terms of truthlikeness, problem-solving, knowledge, and understanding. Equally importantly, the paper outlines a common framework for how to understand and evaluate these accounts. We distill a series of lessons from this exercise, to help pave the way for a more fruitful discussion about philosophical progress in the future.

1 | INTRODUCTION

Is there progress in philosophy? Is there enough of it? Recently, various versions of these questions have been raised and vigorously debated. Proffered answers range from the darkest pessimism, on which there is no progress in philosophy whatsoever (e.g., Dietrich, 2011), to the brightest optimism, on which philosophy has provided answers to all the big questions (e.g., Cappelen, 2017).

In between, there are moderate pessimists, who contend that philosophy has made some progress but not as much as we would like or see in the sciences (e.g., Chalmers, 2015), and moderate optimists, who argue that philosophy has made about as much progress as could reasonably be expected (e.g., Stoljar, 2017).

Unfortunately, these views are difficult to compare and evaluate, because they rest on different assumptions about the conditions under which philosophy makes progress. This difficulty is compounded by the fact that these assumptions often remain tacit. Surveying the literature in search of a general definition of philosophical progress, on the basis of which one could systematically estimate whether and how much philosophical progress has been made, reveals a surprising lack of explicit proposals. What we find instead is a gerrymandered collection of merely sufficient conditions—proposed by optimists to show that there is more progress than we might have thought—and merely necessary conditions—proposed by pessimists to show that there is less. The door is open, then, for optimists to celebrate achievements that pessimists do not deny, while pessimists decry limitations that optimists are happy to accept.

In short, we lack common ground on which to stand as we evaluate whether (and the extent to which) philosophy has made progress. Such a shared backdrop is also required to evaluate and discuss how best to facilitate philosophical progress in the future. In particular, the notion of progress should guide our decisions regarding where to devote our intellectual and financial resources, and shed light on which methods we should use in philosophy.[1]

What we need, then, is a general *account* of the nature of philosophical progress: preferably, a set of necessary and sufficient conditions for progress. More fundamentally, we need a common *framework* within which accounts of philosophical progress can be proposed and evaluated. This paper aims to provide such a framework. We articulate four broad approaches to developing an account of philosophical progress which could serve both as templates and as common ground in debates between pessimists and optimists, along with a set of distinctions and concepts that help to clarify and evaluate these accounts. To be clear, our aim is not to argue in favor of any particular account—or, by implication, to defend optimism or pessimism. Rather, our aim is to lay the groundwork for a more constructive and systematic debate about philosophical progress moving forward.

The framework we propose is not created *ex nihilo*. In the philosophy of science, there is now a mature debate about the nature of *scientific* progress stretching back to Popper (1963) and Kuhn (1970). Four competing accounts have garnered the most attention, which respectively define scientific progress in terms of *truthlikeness*, *problem-solving*, *knowledge*, and *understanding*. Importantly, these accounts are formulated and debated within a common framework that has gradually emerged over several decades of philosophical discussion. This paper seeks to extend this framework for thinking about scientific progress, and the most influential accounts therein, to the topic of philosophical progress. Motivated by the fact that pessimists and optimists alike frequently compare philosophical progress to scientific progress,[2] we take it as a working assumption that the debate about philosophical progress can be advanced by looking to the debate about scientific progress.

With these thoughts in mind, we will articulate the framework underpinning debates about scientific progress and draw from it several lessons for debates about philosophical progress. For example, we argue that whether and the extent to which persistent disagreement or lack of convergence between philosophers' views is the basis of a convincing argument for pessimism—as many pessimists claim or assume (e.g., Chalmers, 2015)—largely depends on which account of philosophical progress is adopted. While persistent disagreement presents a straightforward challenge for progress on some knowledge-based accounts, it is less clear that disagreement as such

undermines progress on accounts that eschew justification requirements on philosophical progress. Similarly, one of Stoljar's (2017) central arguments for a moderate optimism about philosophical progress ('*reasonable* optimism') rests heavily on the idea that solving certain kinds of problems is in itself sufficient for progress. However, as we discuss below, Stoljar's argument that the way philosophers typically solve problems is progressive would benefit from drawing upon resources and distinctions developed in the service of theorizing about scientific progress.

We proceed as follows. In §2, we survey the most prominent views and arguments concerning philosophical progress in the recent literature. In §3, we turn to four influential accounts of scientific progress and the framework in which they have been proposed, and then formulate four analogous accounts of philosophical progress. In §4, we distill a series of lessons from this exercise, to help pave the way for a more fruitful discussion about philosophical progress in the future.

2 | THE DEBATE ABOUT PHILOSOPHICAL PROGRESS

There has been a recent surge of interest in whether, and the extent to which, philosophy makes progress. In what follows, we highlight various stances that have been taken, and take a closer look at a recurring theme, viz. that persistent lack of agreement or convergence between philosophers undermines philosophical progress.

2.1 | Pessimism about philosophical progress

In general, pessimism about philosophical progress holds that philosophy has either made no progress at all, or not 'enough' relative to some specified benchmark, such as the progress of various successful sciences. Arguments for pessimism tend to follow a common schema, where (i) some allegedly necessary condition for philosophical progress is identified, (ii) it is then argued that this condition has not been satisfied, or not been satisfied to a sufficient extent, finally (iii) it is concluded that philosophy has not made progress, or has not made 'enough' of it.

The most commonly cited necessary condition is *agreement* between philosophers about the answers to philosophical questions, or, relatedly, *collective convergence* on such answers over time.[3] The alleged necessity of agreement or convergence for progress is made explicit by, among others, Rescher (2014), and Chalmers (2015). These philosophers then describe what they take to be an empirical reality, namely that contemporary philosophy continues to grapple with ancient questions—from questions about what is morally obligatory to questions about the relation between mind and body—and yet it seems that philosophers have still not reached any consensus about how to answer these questions. Instead, we see a proliferation of theories, including those that explore entirely new logical space and those that tweak and amend prior theories in increasingly fine-grained ways. With so many different and mutually exclusive theories endorsed by philosophers, many have been prompted to doubt that philosophy makes any, or enough, progress.

To substantiate the impression that collective convergence on philosophical questions is rare, Chalmers (2015) cites the 2009 PhilPapers survey of more than 450 professional philosophers' views regarding key philosophical questions and positions (cf. Bourget & Chalmers, 2014). On 23 of the 30 questions, the most commonly held view is endorsed by less than 60% of respondents (Chalmers, 2015, 9). According to Chalmers, this apparent lack of consensus indicates that we have not made enough progress, leading him to endorse a moderate form of pessimism on which there is less progress in philosophy than we would like—and, in particular, less progress than in the

'hard' sciences (Chalmers, 2015, 4).[4] Other pessimists draw a more extreme conclusion from this lack of convergence: philosophy does not make progress at all. Horwich (2012, 34), for instance, bemoans philosophy's "embarrassing failure, after over two thousand years, to settle any of its central questions."[5]

Why exactly would a lack of agreement or convergence undermine philosophical progress? Although arguments to this effect are not always spelled out explicitly, some authors (e.g., Chalmers, 2015; see also Cappelen, 2017) suggest that one reason stems from the way in which some kinds of philosophical disagreement appear to undermine knowledge. The thought seems to be that if sufficiently many of my philosophical 'peers'—i.e., philosophers who are (roughly) equally competent reasoners and (roughly) equally as well informed as I am—disagree with me on a particular philosophical issue, I would as a result be unjustified in believing my own views to be correct. And *mutatis mutandis* for my philosophical peers, provided that there are enough other peers who, like me, disagree with them. The upshot would be that our philosophical beliefs on that issue would not constitute knowledge,[6] from which it might be inferred that no progress has been made with regard to this philosophical issue. This would be the case regardless of whether any of these views are in fact correct or supported by first-order philosophical arguments, since the higher-order evidence of pervasive peer disagreement would undermine knowledge even in that case. Of course, one can resist this argument by adopting a view of peer disagreement on which it does not undermine knowledge, or by arguing that disagreements among philosophers rarely qualify as *peer* disagreement because of the stringent requirements on epistemic peerhood (see, e.g., Elga, 2007; King, 2011). More importantly for our purposes is to note that this argument assumes a tight connection between progress and knowledge—which is denied by most accounts of scientific progress. (We will return to this point below.)

A closely related argument proceeds from the premise that philosophical problems and theories do not seem to disappear from serious consideration in the way that scientific theories regularly do (e.g., Dietrich, 2011; Jones, 2017; Slezak, 2018; Sterba, 2004). While no serious physicist would endorse Aristotelian physics, for example, many philosophers still endorse versions of Aristotle's philosophical theses. A similar worry is that what appear to be new philosophical arguments, theories and debates in fact closely resemble the philosophical arguments, theories and debates of the past. As Arthur Lovejoy (1917, 126-127) describes the phenomenon in his 1916 presidential address to the American Philosophical Association, "the speculative fashion of one generation becomes a discredited error to the next, and returns to vogue (perhaps with the air of a new discovery) in a third."

Various other arguments for pessimism are worth mentioning despite being less influential. McGinn (1993) argues that while philosophical problems are in principle solvable, evolution has not endowed humans with the psychological capacity to solve them. Mironov (2013) argues that philosophical progress is impossible, since the very point of philosophy is to articulate different and even conflicting interpretations of phenomena as opposed to converging on a set of common views. Yet another strand of pessimistic argument attacks the prevalence of *a priori* philosophical methods, contending that philosophy has not made sufficient progress because the methods that are typically used are not conducive to reliably discovering the truth (Sytsma & Livengood, 2012).

2.2 | Optimism about philosophical progress

Optimism about philosophical progress holds that philosophy has either made outstanding progress, or at least 'enough'—again, relative to some benchmark, such as the progress of

various successful sciences. Since optimism is thus roughly the negation of pessimism, the primary argumentative strategy of optimists has been to rebut the arguments of pessimists.

In response to pessimistic arguments from a lack of convergence to a lack of progress, some optimists argue that there is considerably more convergence than pessimists have assumed (e.g., Frances, 2017; Stoljar, 2017). One way to substantiate this response consists in pointing out that philosophical debate encourages us to *focus our attention* on the philosophical theses we disagree on, while less controversial theses are passed by in silence precisely because there is less interest in debating theses on which there is no disagreement (Frances, 2017, 52).[7] Others deny that agreement or collective convergence is necessary for progress (e.g., Bengson et al., 2019; Brock, 2017; Cappelen, 2017). For example, Cappelen (2017) rejects the threat of disagreement for progress, likening the search for philosophical truth to the search for a golden coin in a haystack. So long as *one of us* finds the coin, we can say that *we* have found the coin. By analogy, so long as one of us comes to know some philosophical truth, we can say that we have collectively come to know that truth.

Other (moderate) optimists about philosophical progress emphasize that 'big' philosophical problems can be solved and have been solved (e.g., Rapaport, 1982; Stoljar, 2017). For example, Stoljar (2017, 55-56) suggests that it has been established and generally agreed upon that not all facts about meaning are necessitated by behavioral facts. According to Stoljar, this solves Quine's problem of the indeterminacy of meaning since that problem consists in determining which claim to reject in the following inconsistent triad which he calls a 'boundary problem' (Stoljar, 2017, 47):

(a) There are facts about meaning.
(b) If there are facts about meaning, all such facts are necessitated by behavioral facts.
(c) If there are facts about meaning, not all such facts are necessitated by behavioral facts.

By Stoljar's lights, rejecting (b) counts as a solution to Quine's problem. Other 'big' problems of philosophy have been solved in an exactly analogous way, viz. by rejecting a 'boundary thesis' claiming that all facts of one kind are facts of some other kind.

Significantly, among the optimists we find a rare attempt to define the concept of philosophical progress. Stoljar (2017, 25) suggests that there is progress in philosophy if and only if "the questions of philosophy *or suitably related questions* have been answered in the past and it is reasonable to suppose that such questions will be answered in the future." While we will say more about Stoljar's suggestion in §4, for now it is worth noting that one of his primary contributions to the debate between optimists and pessimists is to argue that the latter fail to distinguish philosophical problems at a sufficiently fine grain. In one of his two main arguments for optimism, Stoljar leans heavily on the case of Descartes' mind-body problem which, he contends, is not the same as the mind-body problem we grapple with today. While the latter problem remains unsolved, the former problem is solved—and indeed there is widespread consensus on its solution. The fact that we are dealing with a 'successor problem' with the very same name leads people to falsely suppose that we are still grappling with, and disagreeing about, the very same as-yet-unsolved mind-body problem. Stoljar argues that similar thoughts apply to many philosophical problems. Thus he concludes that upon closer examination, many of the problems with which we grapple today are not identical to problems posed in the past, and indeed that there is convergence on the solutions to many past problems.

Several themes emerge from the above discussion. First, the prevalence of philosophical progress is frequently compared to the prevalence of scientific progress. Second, many pessimists,

and even some optimists, have taken there to be a quite strong connection between philosophical progress and convergence between philosophers' views, or lack thereof (i.e., persistent disagreement). Third, there has been thought to be some connection between progress and answering philosophical questions or solving philosophical problems. However, without a shared *framework* within which to evaluate the precise nature of these connections it is hard to see how we might go about doing so.

3 | FROM SCIENTIFIC PROGRESS TO PHILOSOPHICAL PROGRESS

In what follows, we will suggest an approach to building the requisite framework which draws heavily upon the debate about scientific progress. This will come as no surprise to those who accept Quine's (1957, 1981) dictum that philosophy is continuous with science, in which case it is highly doubtful that there would be any substantial differences between scientific and philosophical progress. Indeed, the fact that science and philosophy are both forms of inquiry—and that science can inform philosophy and *vice versa*— suggests they have at least some aims in common, even if they pursue these aims in different ways. Most importantly, both pessimists and optimists frequently compare the *extent* of philosophical progress to the extent of scientific progress.[8] Such quantitative comparisons would make little sense if these two notions of progress were fundamentally different, since there would then be no common measure relative to which philosophy could be said to make more or less progress than science (or indeed the same amount).

To be clear, none of this is to assume that that science and philosophy are alike in all respects. For example, if (and to the extent that) philosophy and science investigate different subject matters, it is to be expected that they will use different methods to make progress. However, a stark methodological difference between science and philosophy is entirely compatible with a uniform account of progress across these disciplines. Moreover, even those who take philosophical and scientific progress to be fundamentally different have a lot to learn from our suggestions below for how to develop accounts of philosophical progress by analogy with accounts of scientific progress. For them, an account of progress that is implausible for science may be plausible for philosophy (and *vice versa*), so they may choose to accept an account of philosophical progress that is analogous to one of the accounts of scientific progress that they reject. Importantly, those who embrace this approach must give up on comparing the extent of philosophical and scientific progress.

We first introduce four dominant accounts of scientific progress (§3.1); then we outline the common framework that has emerged for debating these accounts (§3.2); before finally formulating philosophical counterparts of these accounts (§3.3).

3.1 | Accounts of scientific progress

According to what is widely considered to be a naïve view of scientific progress (e.g., Dellsén, 2018b; Niiniluoto, 2019), science makes progress when true theories are proposed and accepted. This naïve view quickly loses its appeal when we look at the history of science. Not all false theories are equal, and some episodes whereby one false theory is replaced with another look to be progressive. Despite being false, the successor theory is nonetheless often *an improvement* on its predecessor. For example, Niels Bohr's model of the atom on which negatively-charged electrons orbit a much more massive positively-charged nucleus with fixed radii is, strictly speaking, false. Yet Bohr's model was clearly an improvement on the previous 'plum pudding' model, proposed by

J.J. Thomson, according to which the electrons were evenly distributed within a positively charged area or substrate (as plums in a pudding).

Recognition of this clear shortcoming of the naïve view has given rise to a systematic philosophical exploration of the nature of scientific progress, which arguably began in earnest with Popper's influential falsificationist program in which the concept of 'verisimilitude' plays a major role (Popper, 1959, 1963). Roughly speaking, *verisimilitude*—or *truthlikeness*, as it is now standardly called—is meant to measure the extent to which a given theory captures the whole truth about some topic or phenomenon, or even the entire world. Truthlikeness is not identical to the more familiar concept of *approximate truth*, even when the latter is understood as a gradable notion, since a theory may be highly approximately true of some phenomenon and yet be very uninformative. By contrast, a highly truthlike theory is one that balances informativeness and approximation to the truth. For example, compare the theory that *the Earth is not flat* to the theory that *the Earth is a sphere*. The former is more approximately true (indeed, it is fully true) than the latter (which is strictly speaking false) but the latter is more truthlike since it is far more informative.

Popper proposed an account of scientific progress in terms of his notion of verisimilitude (i.e., truthlikeness), and this idea was subsequently developed in great detail by Niiniluoto (1980, 1984, 1987, 2014) and others (Cevolani & Tambolo, 2013; Kuipers, 2009; see also Oddie, 1986). This is the *truthlikeness account* of scientific progress. While details differ between particular formulations of the account—depending primarily on how to define the somewhat elusive notion of truthlikeness in the most plausible way—they share the core idea that scientific progress occurs between t_1 and t_2 precisely when the scientific theories accepted at t_2 are more truthlike than those that were accepted at t_1.[9] In Niiniluoto's version of the truthlikeness account—which may be seen as canonical at this point—the truthlikeness of a scientific theory T is defined relative to a language L as a measure of the similarity between a maximally specific claim C^* in L, that fully captures everything that is true, and a disjunction of other such maximally specific claims $(C_1 \vee ... \vee C_n)$ that captures the content of T by effectively listing all the maximally specific possible states of affairs allowed by T.

Until relatively recently, the most influential alternative to the truthlikeness account was an explicitly anti-realist account initially suggested by Kuhn (1970) and developed in detail by Laudan (1977, 1981; see also Shan, 2019). The key notion behind this account of scientific progress is that of *scientific problems*,[10] which divide into *empirical problems* (questions concerning the objects or entities that a particular scientific theory is meant to explain or account for) and *conceptual problems* (questions about the theories themselves or how they relate to other theories). Importantly, there is no fixed or objectively correct set of scientific problems; rather, what counts as a scientific problem is determined by the *research tradition*[11] that is dominant among scientists in a given discipline at a given time. Thus if a particular question constitutes a problem relative to the (perhaps mistaken) assumptions of scientists working within a particular research tradition, then it *is* a problem relative to that research tradition. Indeed, there is no requirement here that a 'problem' in this sense rest on correct assumptions; thus some of the 'problems' of past research traditions will seem entirely spurious when viewed in retrospect.

With this notion of a scientific problem in hand, the *problem-solving account* of scientific progress simply defines progress as a decrease over time in the number and importance of the unsolved problems within a research tradition. Thus there are in effect two ways to make progress according to the problem-solving account: on the one hand, scientists make progress by answering—to their own satisfaction, as determined by the research tradition—a question that constitutes an empirical or conceptual problem for them; on the other hand, progress can also be made by scientists dismissing or downgrading a question's importance—by their lights, as

determined by the research tradition. As an example of the latter, consider that accounting for the apparent action-at-a-distance involved in gravitational interactions was considered to be an important conceptual problem in pre-Newtonian physics, only to be dismissed within the subsequent Newtonian paradigm. According to the problem-solving account, this constituted progress no less than Einstein's later *solution* to the problem in which gravitational interactions are mediated by the curvature of space-time itself.

A third, more recent, account of scientific progress is the *epistemic account* developed by Bird (2007, 2008, 2016). According to this account, scientific progress occurs if and only if there is accumulation of *knowledge*, i.e., the addition of new knowledge to what is already known in science. This implies that adopting a new theory only counts as progressive if our epistemic state with regard to that theory satisfies all of the necessary conditions for knowledge. So on this account, progress consists in accumulating theories that are, minimally, *true*,[12] *believed*, and in some sense *epistemically justified*. Here, epistemic justification may be understood internalistically, e.g., in terms of support from evidence to which the agent has direct access, or externalistically, e.g., in terms of reliability, safety, and/or sensitivity. On many accounts of epistemic justification (especially of the internalist variety), not every justified true belief is knowledge (Gettier, 1963), so accumulating justified true beliefs may not always be sufficient for progress on the epistemic account; but since Gettier cases are relatively rare this complication can often be ignored (although there may be exceptions; see Barnes, 1991, 317; Bird, 2016, 554-559).

A key difference between Bird's epistemic account and competing accounts of scientific progress concerns the requirement that accumulating theories be epistemically justified. Bird argues that this is an advantage by considering hypothetical cases where scientists come to believe a true theory that isn't adequately supported by scientific evidence, and so fails to be justified. According to Bird, the truthlikeness account implies the intuitively incorrect verdict that such cases would be progressive; whereas the epistemic account correctly implies that they would not be. Bird's argument has been repeatedly challenged (e.g., Cevolani & Tambolo, 2013; Dellsén, 2016; Niiniluoto, 2014; Rowbottom, 2008, 2010), and the intuition on which it rests does not appear to be particularly widespread (Mizrahi & Buckwalter, 2014). We are not concerned with settling this dispute here; rather, we merely note that it is a major bone of contention in the recent debate about scientific progress whether progress requires epistemic justification in the sense required for knowledge.

A fourth and final account of scientific progress is the *noetic account* developed by Dellsén (2016, 2018a, forthcoming; 2015; Goebel, 2019; Potochnik, 2017). According to this account, making scientific progress with regard to some phenomenon amounts to gaining or improving our abilities to correctly explain or predict it. To illustrate, the noetic account implies that scientists make progress on COVID-19, for example, whenever they become better able to explain the disease or predict its behavior—e.g., by discovering more about its causes or modeling its future spread more accurately. Dellsén characterizes this type of cognitive achievement as increased *understanding* of the phenomenon in question. However, the nature of understanding is much debated. Indeed, one view on offer is that understanding reduces to a type of knowledge.[13] Pairing this reductionist view of understanding with an understanding-based account of scientific progress would simply be a more demanding version of the epistemic account, on which not all accumulations of knowledge constitute progress. Dellsén's noetic account, however, explicitly defines understanding such that it doesn't reduce to a type of knowledge, or even require epistemic justification (Dellsén, 2016, 2017). Thus, scientific progress can be made in the absence of epistemic justification on Dellsén's noetic account.

Since the noetic account requires explanations and predictions to be *correct* in order for one's coming to grasp them to be an increase in understanding, it is a broadly *factive* account of scientific progress. In this respect, the noetic account differs from the problem-solving account, and resembles the truthlikeness account and the epistemic account. However, Dellsén's noetic account sets itself apart from the truthlikeness account and the epistemic account by taking genuine progress to consist only in the development of more accurate representations of those aspects of the world that foster understanding. Thus Dellsén (2016, 78-79) argues that some highly truthlike or known pieces of information, such as spurious correlations and unsystematic observational data, do not contribute to scientific progress. Contrariwise, certain idealizations away from complex and messy pieces of knowledge or truthlike information constitute progress if they help us to (correctly) explain or predict aspects of the relevant phenomenon, e.g., by flagging causally irrelevant factors.[14]

3.2 | The framework of the scientific progress debate

Having presented the four main accounts of scientific progress on offer, we will now comment on various issues, distinctions, and connections that have emerged during the decades in which these accounts have been discussed. These collectively constitute the *framework* within which accounts of scientific progress have been offered and debated. In so doing, we hope to lay the groundwork for a more constructive and systematic debate about philosophical progress.

According to Niiniluoto (1980, 2019), we should distinguish some basic questions about scientific progress: The *conceptual* question is concerned with a definition of the term 'scientific progress'. The *factual* question is concerned with whether science actually makes progress. The *methodological* (or *epistemological*) question is concerned with how progress can be identified or recognized, i.e., what indicates that progress has occurred or will occur. It's important to keep these questions apart; but equally important is the fact that answering one in a certain way may influence how we answer another. In particular, answers to the factual and methodological/epistemological questions depend on an answer to the conceptual question. Moreover, the latter should not be conflated with the methodological/epistemological question, e.g., because solving problems might epistemologically *indicate* that we are making progress while not necessarily *constituting* progress.

The first thing to note about the conceptual question is that the generic term 'progress' is partly evaluative, roughly meaning *improvement across time* (Niiniluoto, 2019, §2.2). Thus an account of scientific progress has consequences for how scientific research should be organized and incentivized. For example, to the extent that one's preferred account of scientific progress counts a particular research project R_1 as more progressive than another such project R_2 (because, say, the former is certain to lead to more truthlike theories being accepted), then—all other things being equal—scientists should be incentivized to pursue R_1 at the expense of R_2. According to an alternative account, R_2 may be more progressive (e.g., because it would provide more understanding than R_1, albeit at the expense of some truthlikeness), in which case proponents of that account should prefer R_2 over R_1.

Second, it is important to note that although 'progress' is a term for improvement over time, accounts of scientific progress are not meant to capture every sense in which science could be said to improve. For example, although science would improve by being better funded, by adopting more reliable ways to conduct peer review, or by increasing gender equality among scientists, these

types of improvements are not the subject of the aforementioned accounts of scientific progress. Niiniluoto (2019, §2.) refers to the type of progress that is at issue in the debate as *cognitive progress*, and distinguishes it from methodological, economical, educational, and professional progress in science. This is not to say that these other forms of progress are unimportant, or less important than cognitive progress. Rather, the point is just that these forms of scientific progress should be distinguished for the purposes of the debate between truthlikeness, problem-solving, epistemic, and noetic accounts of (cognitive) progress.

Third, another useful distinction that has been made in recent discussions is that between *constituting* and *promoting* progress (Bird, 2008, 280; Dellsén, 2018a, 73). The four accounts reviewed in §3.2 are clearly intended as accounts of what *constitutes* progress. The truthlikeness account, for example, is best interpreted as holding that increasing truthlikeness *is* progress. However, there are many other ways to make valuable contributions to science, even cognitively, e.g., developing a sophisticated mathematical framework in which a new theory could finally be adequately formulated. This elementary point would not refute the truthlikeness account since such valuable cognitive developments can be classified as promoting increases in truthlikeness—and thus, according to the truthlikeness account, promoting progress. Although constituting and promoting progress would thus be closely related, they would be distinct in so far as a progress-promoting episode would be valuable only to the extent that it leads to—or is likely to lead to—scientific progress at a later time, whereas a progress-constituting episode would be valuable regardless of its actual or probable causal effects.

Fourth, another important issue concerns the *agent(s)* whose psychological or epistemic states determine whether progress has occurred (see, e.g., Bird, 2019; Gilbert, 2000; Ross, 2020). For ease of discussion, consider the epistemic account specifically (analogous issues arise for alternative accounts). *Who* (or *what*) is it that must have more scientific knowledge at t_2 than at t_1 in order for scientific progress to occur between t_1 and t_2 according to this account? It seems insufficient for progress that some single scientist gains knowledge between t_1 and t_2.[15] After all, other scientists may simultaneously lose knowledge, leading to an overall reduction in knowledge, especially if the individual who gains knowledge is isolated and uninfluential. So, while increasing the knowledge of individual scientists will often promote progress, it does not constitute progress. Thus two main alternatives suggest themselves, viz. (i) that some sufficiently large majority of scientists must have gained knowledge, or (ii) that the scientific community—considered as an epistemic agent in its own right capable of mental states or direct analogues thereof—has gained knowledge.[16]

Fifth, an implicit assumption in debates about scientific progress is that progress is a *matter of degree*: there can be more and less progress during a given episode.[17] Indeed, for many important purposes, it is clearly not enough to be able to say *whether* progress did, or would, occur during that episode; rather, we want to also know *how much* progress did, or would, occur. Suppose, for example, that we are deciding between research projects R_1 and R_2, where it is universally agreed that each project would lead to *some* progress. In that case, an account of scientific progress would be useless unless it also told us which of the two projects is likely to lead to *more* progress (or that they would lead to exactly the same amount of progress). This gradability of progress is effortlessly explained by all extant accounts of scientific progress, since they all define progress in terms of something that is itself gradable in one way or another. In the case of the epistemic account, for example, although knowledge of some specific proposition may not itself be a matter of degree, it is a matter of degree how many propositions are known at a given time.

3.3 | From scientific to philosophical progress

Having presented the four main alternative accounts of scientific progress and the framework within which they have been proposed and debated, we now consider whether and how these accounts can be extended into accounts of philosophical progress. In addition to these four accounts, one can, of course, combine two or more of them into a pluralist account on which philosophical progress can consist in fundamentally different achievements of the sorts discussed below. Alternatively, one can draw upon elements from the different accounts in order to develop a hybrid account (more on this below). (In order to distinguish accounts of philosophical progress from related accounts of scientific progress, we will use a subscripted 'P' in labeling the former.)

Consider first a *truthlikeness account*$_P$, according to which philosophy progresses between t_1 and t_2 just in case the philosophical theories accepted at t_2 are more truthlike than those accepted at t_1. In order to cover progress in normative areas of philosophy, such as ethics, the notion of 'truthlikeness' would have to extend beyond descriptive facts to normative facts, such as the precise circumstances under which it would be morally wrong to tell a lie (if there are indeed such normative facts). These normative facts would simply be included in the maximally specific claim C^* that accurately captures all facts, and against which a given philosophical theory T—associated with a disjunction of maximally specific claims $(C_1 \vee ... \vee C_n)$—would be measured for truthlikeness. A theory of when lying is wrong, for example, would be truthlike to the extent that the disjuncts in its massive disjunction are similar to C^*, which includes, among other things, a fully true claim about exactly when lying is wrong.

Like the account of scientific progress from which it draws inspiration, this truthlikeness account$_P$ does *not* require that any of the theories accepted at the end of an episode are fully true, let alone maximally truthlike, for that episode to be progressive. Indeed, the truthlikeness account$_P$ entails that a less accurate, but more informative, such theory may be more truthlike than its more accurate counterpart. So, for example, since the theory that *lying is sometimes wrong* is less informative than the theory that *lying is wrong whenever an alternative course of action would lead to a greater balance of pleasure over pain*, the latter theory may well be more truthlike than the former—even if utilitarianism is false. Put differently, the latter theory may capture more of the truth than the former, even if the former is true and the latter false. Thus, as per the truthlikeness account of *scientific* progress, the truthlikeness account$_P$ implies that coming to accept a false theory—even a theory that is known for certain to be false—may very well constitute philosophical progress.

This immediately suggests that it is a mistake, at least from the truthlikeness account$_P$'s perspective, to infer that accepting 'failed' philosophical theories cannot constitute progress. Consider Gettier's (1963) infamous counterexamples to the thesis that knowledge is justified true belief. Although this 'tripartite' theory of knowledge is thus plausibly false, it is also arguably highly truthlike, especially in comparison to the unreflective view—often found among laypeople unfamiliar with the concept of justification—that knowledge is simply true belief. Moreover, at least some of the views developed in response to Gettier's counterexamples, e.g., that knowledge is justified true belief whose truth isn't due to luck (e.g., Pritchard, 2005; Zagzebski, 1994), are plausibly more truthlike than the original 'tripartite' theory.[18] Indeed, even if all theories of knowledge currently in contention are strictly speaking false, a modestly accurate theory of knowledge might be highly truthlike since any such theory that aims for full generality will be extremely informative.

Next let's consider a *problem-solving account*$_P$, according to which philosophy progresses between t_1 and t_2 just in case there are fewer (or less important) unsolved philosophical problems at t_2 than at t_1. For this account to be analogous to the corresponding account of scientific progress, a philosophical 'research tradition' would have to determine what counts as a 'problem', how 'important' a given problem is, and what counts as a 'solution' to such a problem. But which aspects of philosophical practice must be shared by a community of philosophers in order for that community to constitute such a research tradition? One option is to identify research traditions with very broad historical schools of thought, such as 'analytic philosophy' and 'continental philosophy'. This seems appropriate in so far as analytic philosophers, for example, are broadly in agreement on regarding the need to respond to certain philosophical problems, e.g., regarding the relation of mind to body, the status of moral claims, and the analysis of knowledge.

However, to the extent that analytic philosophers disagree on which problems are most important, and on the appropriate methodology for philosophy—determining, amongst other things, what counts as a genuine solution to any such problem—it is not clear that analytic philosophy is a suitable candidate for a research tradition. Instead, a 'research tradition' may have to be identified with something more fine-grained, such as philosophical movements like *logical positivism*, *ordinary language philosophy*, and *experimental philosophy*. A potential problem with this suggestion is that much of philosophy seems to take place entirely outside of any designated philosophical movement of this kind. In response, one might suggest that we simply lack a name for the largest such movement within analytic philosophy, but that—inevitably—we are all part of some such movement since we all implicitly accept certain problems as most important, and certain solutions as genuine, even if we don't explicitly conceive ourselves as part of the (perhaps unnamed) movement that shares these assumptions.

One way to resolve the challenge of finding a philosophical counterpart to a scientific research tradition is to say that the identities of philosophical problems, their importance, and what counts as solving them, is simply determined by the attitudes of an individual philosopher working on those problems. This way of spelling out the problem-solving account$_P$ would depart rather radically from the problem-solving account as developed by Kuhn and Laudan, where grounding these facts in research traditions makes them, if not objective, at least *intersubjective*. By contrast, the individualistic version of the problem-solving account$_P$ we are now considering would imply that philosophical progress is entirely agent-relative, so that what counts as progress for one person will not count as progress for another unless they happen to share the relevant attitudes. Indeed, someone who has sufficiently lenient standards for what counts as 'solving' some set of philosophical problems could on this view truly say that philosophy has made a lot of progress, while someone with stricter standards would be saying something false using the exact same words. Relatedly, according to such an account we would make progress, relative to the standards of some agent, when that agent simply *downgrades* the importance of some as-yet-unsolved problem.

One important upshot of this discussion of the problem-solving account$_P$ is that the notions of a 'problem', its 'importance', and a corresponding 'solution' are inherently relative to something or other—be it a broad tradition like analytic philosophy, a somewhat narrower movement like experimental philosophy, or individual philosophers like you and me. Put somewhat differently, it makes no sense on the Kuhn- and Laudan-inspired problem-solving account$_P$ that we have articulated, to say that this or that is an important philosophical problem, or that we have a solution to the problem, *in an absolute sense*. Consequently, when the problem-solving account$_P$ appeals to notions like 'problems', their 'importance', and their 'solutions', such notions will always be relativized to whatever it is that determines their meanings, e.g., traditions, movements,

or individuals. Of course, Kuhn and Laudan were happy to accept this implication for scientific progress—indeed, it is intentionally built into their accounts. It's doubtful, however, that philosophers who appeal to philosophy's 'solutions' to 'big' 'problems' are quite as happy to do so as well.

Now let's turn to an *epistemic account*$_P$, according to which philosophy progresses between t_1 and t_2 just in case more philosophical theories are known at t_2 than at t_1. The most distinctive feature of such an account is that it would require philosophical theories to be justified in some sense (and perhaps also non-Gettiered) in order for our coming to believe them to constitute progress. This brings to the fore the question of how—and indeed whether—philosophical theories are epistemically justified. Knock-down philosophical arguments are notoriously rare,[19] since when faced with a valid argument for an unpalatable conclusion it is relatively easy to reject one or more premises. As the saying goes, one person's *modus ponens* is another's *modus tollens*. This phenomenon of 'premise deniability' (Chalmers, 2015, 18; see also van Inwagen, 2006, 37-55) is certainly much more pervasive in philosophy than in science—even if premises can sometimes reasonably be rejected in science as well. (While the observational data to which scientific arguments typically appeal can be—and sometimes are—contested, the theories and 'intuitions' to which philosophical arguments typically appeal are more easily and frequently contested.) Thus, while it is an open question whether and to what extent premise deniability undermines justification (on a given theory of the latter), proponents of an epistemic account would seem to either owe us a story of how philosophical theories are justified in spite of premise deniability, or else submit to the pessimistic conclusion that philosophical progress is relatively rare.

Finally, let's consider a *noetic account*$_P$, according to which philosophical progress consists in increasing understanding of philosophical phenomena—or, perhaps, philosophical aspects of (possibly non-philosophical) phenomena.[20] Using Dellsén's operational definition of understanding, this would consist in gaining or improving abilities to correctly explain or predict aspects of the relevant phenomenon. So, for example, philosophical progress would be made with regard to knowledge to the extent that we succeed in explaining what makes something knowledge, i.e., what 'grounds' knowledge, or in predicting whether a given mental state would constitute knowledge. As noted, Dellsén (2016, 81) emphasizes that the noetic account allows that increased understanding—and thus progress—can be achieved via theories and models that include idealizations in so far as they facilitate correct explanation and prediction. A potential example in the philosophical domain is the extensive idealizations employed in formal epistemology, as when epistemic agents are modeled as possessing infinitely fine-grained opinions, i.e., *credences*. Even though no agents, rational or otherwise, have opinions that are so fine-grained, this idealization serves various useful purposes as far as understanding is concerned, e.g., in enabling us to explain how an agent's rational degree of confidence in a conjunction depends on their confidence in each of its conjuncts.

Having outlined these philosophical counterparts of the leading accounts of scientific progress, we emphasize again that our intent is not to argue that one of them must be the correct account of philosophical progress. As in the case of scientific progress, it is very much an open question whether any of the accounts adequately defines progress or whether we need an alternative account.

Indeed, one obvious type of alternative account is one that combines two or more of the accounts outlined above into a *pluralist* (or disjunctive) account. On such an account, multiple distinct achievements can each constitute philosophical progress. For example, we might make progress when we increase the truthlikeness of accepted theories *or* increase our understanding of philosophical phenomena. While this move would introduce its own set of issues, such as how to

balance one kind of progress against another to determine the degree of progress overall, it would also encompass a broader range of developments under the banner of progress.

Another type of alternative account would combine elements from different accounts into a *hybrid* account of philosophical progress. For example, consider a hybrid of the problem-solving and truthlikeness accounts$_P$ that emphasizes the role of a research tradition in determining what counts as a problem (such that solving it would be progressive), while simultaneously measuring the progress made by a given solution in terms of its truthlikeness. By incorporating machinery from the truthlikeness account, this hybrid account pursues a more objective approach to evaluating putative solutions to philosophical problems than the (non-hybrid) problem-solving account$_P$. At the same time, it does justice to the plausible thought that whether solving a given problem constitutes progress might be determined by the status attributed to that problem by the philosophical analogue of a research tradition.

Although pluralist or hybrid accounts are alternatives to the four accounts outlined above, their development also rests squarely on having already outlined the accounts (or elements thereof) that are to be combined—which is what we hope to have done. More importantly, formulating these accounts and locating them within a general framework inspired by the debate about scientific progress allows us to draw valuable lessons for advancing the debate about philosophical progress.

4 | LESSONS FOR PHILOSOPHICAL PROGRESS

We are now in a position to distill several important lessons from the preceding discussion concerning recent debates about the nature and prevalence of philosophical progress.

4.1 | Crucial distinctions

The first set of lessons returns to the distinctions made in the framework underpinning debates about scientific progress, which can also provide much-needed clarity and systematicity to the debate about philosophical progress.

First, drawing on Niiniluoto (1980, 2019), we should note that the *factual* question about the existence and prevalence of philosophical progress depends on the *conceptual* question about the nature of philosophical progress. It makes little sense to judge whether or not philosophy makes progress before determining what would be required in order for it to do so. Nevertheless, extant defenses of pessimism and optimism about philosophical progress, i.e., answers to the factual question, have largely proceeded without any explicit mention of how to answer the conceptual question, i.e., which account of philosophical progress is presupposed. Similarly, by keeping separate the *epistemological* question of how we can recognize philosophical progress from the conceptual question of what constitutes philosophical progress, we can see that, for example, collective convergence or solving a philosophical problem might be merely evidence for progress, and not constitute it. More generally, taking care to distinguish the different questions about progress will lead to a more nuanced discussion about philosophical progress.

A second lesson concerns the distinction between progress *tout court* and degrees of progress. A given episode may be more or less progressive, so when comparing the progress of philosophy with some benchmark (e.g., the progress of science) it is not enough to point to progressive episodes or even count the number or proportion of progressive episodes; rather, we must also

measure the degree to which each episode is progressive. This insight sheds some light on what Stoljar (2017, 69-70) calls 'the negativity objection' to his argument for optimism, viz. that in all of his proposed solutions to boundary problems, the answers come in the 'negative' form of *rejecting* a 'boundary thesis' such as 'If there are facts about meaning, all such facts are necessitated by behavioral facts'. Stoljar insists that such an answer, despite being quite uninformative and thus disappointing according to many commentators (e.g., Chalmers, 2015; van Inwagen, 2004), is still progress.

One promising way forward takes its cue from Stoljar's suggestion that when it comes to solutions to philosophical problems, "negativity is one thing, size is another" (Stoljar, 2017, 70). This remark suggests that the dispute about whether 'negative' solutions to boundary problems count as progress can be analyzed using the distinction between progress *tout court* and degrees of progress. To wit, while 'negative' solutions are progressive *tout court*, the degree of progress they provide may (but need not—see below) be small compared to the degree of progress provided by corresponding 'positive' solutions. For example, consider a solution to Quine's problem of the indeterminacy of meaning that allowed us to retain the thesis that all facts about meaning are necessitated by behavioral facts (which would thus provide us with the beginnings of a much-anticipated theory of meaning). This would arguably constitute more progress than the rejection of any necessary connection between meaning and behavior (which says nothing about what *does* necessitate facts about meaning). According to this analysis, there is a sense in which Stoljar and his opponents might both be correct, since Stoljar could be right that 'negative' solutions are progressive *tout court*, while his opponents could be right that these solutions are less progressive than we might have hoped or expected.

Indeed, this intuitive thought that 'negative' solutions may constitute less progress than corresponding 'positive' ones can be fleshed out with the help of some of the theoretical machinery from the accounts developed in section §3.3. The way forward is clearest on the truthlikeness account$_P$, since the notion of truthlikeness, as articulated by, e.g., Niiniluoto (1999) and Oddie (1986), is explicitly and deliberately designed to imply that the truthlikeness of a theory is a function not just of the extent to which it reveals nothing but the truth (accuracy) but also of the extent to which it reveals the whole truth (informativeness). In the above case, the 'positive' solution is clearly more informative than the 'negative' one, so on the truthlikeness account$_P$ the 'positive' solution would constitute more progress than the corresponding 'negative' solution (assuming, in each case, that the relevant solution is true). With that said, Stoljar (2017, 69-72) is right to point out that it is not the 'negativity' or 'positivity' of solutions that determine the extent to which they are progressive, since a 'negative' claim can easily be more informative (and therefore more truthlike, if true) than a 'positive' claim. So the point is not that 'positive' solutions necessarily constitute more progress than 'negative' ones. Rather, the lesson here is that we should focus on how to account for the different degrees of progress made by various solutions, regardless of their 'positive' or 'negative' framing.

A third lesson is that we should distinguish achievements that *promote* progress—the value of which is merely instrumental for future progress—from those *constitutive* of progress—the value of which does not depend on (actual or likely) progress at some later time. This distinction sheds light on the senses in which we might want to be *pluralists* about philosophical progress, as Chalmers (2015, 14) claims to be. Pluralism about what *promotes* progress is eminently plausible, since there are clearly many distinct ways of causing or facilitating progress. Likewise, distinguishing cognitive progress from other kinds of progress amounts to a kind of pluralism about philosophical progress, since any account of cognitive progress can be combined with any view whatsoever regarding other kinds of progress in philosophy (e.g., methodological). It is less clear,

however, that *pluralism about what constitutes cognitive philosophical progress* is correct. If there are many distinct achievements that each constitute progress, how can we compare the extent to which progress has been made through one type of achievement as opposed to another? And what, exactly, is it in virtue of which all these distinct achievements all constitute progress? So pluralism about what constitutes progress, although perhaps an initially attractive thought, comes with its own set of potential problems to which its proponents must respond. The salient alternative is to be a 'monist' about what constitutes cognitive progress but a pluralist about what promotes it, and also acknowledge a plurality of kinds of philosophical progress that are not cognitive.[21]

4.2 | Convergence and disagreement

A second set of lessons concerns what to make of the fact that there appears to be less convergence in philosophy than in science. How, if at all, does this undermine or prevent philosophy from making progress? Here we draw two related lessons.

The first of these lessons relates to the issue concerning the *agent(s)* whose changing cognitive states determine whether an episode counts as progressive. As we noted, it is plausibly not sufficient for scientific progress that a single scientist improves their cognitive attitudes in some way, e.g., by gaining knowledge or increasing their understanding, since other scientists may undergo cognitive regression at the same time. The same point applies, *mutatis mutandis*, to philosophical progress. It is thus arguably a mistake to suggest, as Frances (2017, 55) and Cappelen (2017, 71-72) both do in different ways, that a single individual's improving cognitive attitudes is sufficient for philosophical progress. More generally, this strongly suggests that philosophical progress, like scientific progress, should be analyzed and evaluated at the level of communities of inquirers, perhaps in terms of the proportion who have improved cognitive attitudes of the requisite kind, or in terms of the collective cognitive attitudes of the community itself.

The other lesson is that the significance of peer disagreement, and the extent to which it undermines progress, may vary between the different accounts of philosophical progress. As we have effectively noted already, it is commonly thought that peer disagreement about philosophical claims would undermine an individual's justification for believing them, and consequently prevent them from having knowledge—even when the relevant claims are in fact true and believed.[22] Thus, given sufficiently widespread disagreement on a given philosophical question, it seems that *no* philosopher would know the answer to the question. In that case, there would clearly not be a sufficiently high proportion of inquirers who know that answer for there to be community-level knowledge of the answer; and, at least in typical cases, it would also be a stretch to argue that the community considered as a collective agent could know the answer when none of its members do.[23] Thus, at first blush, it seems plausible that on the epistemic account$_P$, sufficiently widespread disagreement would indeed undermine philosophical progress in a relatively straightforward way.

In fact, however, whether there is any straightforward inference from disagreement to lack of progress depends on exactly how the epistemic account$_P$ is spelled out. In particular, as noted above, a proponent of the epistemic account may opt for a theory of epistemic justification, or of knowledge more generally, according to which peer disagreement may not undermine justification or knowledge.[24] A simple version of process reliabilism, for example, might hold that a belief is justified just in case it is formed as a result of a sufficiently reliable belief-forming process. Such a belief might thus remain justified even in the face of peer disagreement, especially if one's disagreeing peers happen to have formed their beliefs through an unreliable belief-forming

process.[25] If, by contrast, the epistemic account$_P$ is paired with a typical internalist theory of justification, then it seems that one's awareness of peer disagreement would straightforwardly count as (higher-order) evidence against one's initial belief and thus undermine one's justification and knowledge. In sum, then, whether widespread disagreement undermines progress on the epistemic account$_P$ will depend on how one spells out the notion(s) of knowledge and/or justification to which the account appeals.

In addition, it is noteworthy that these considerations regarding the role of disagreement in undermining progress do not apply to any of the other three competing accounts of philosophical progress outlined in §3.3, since none of these accounts impose a justification requirement on philosophical progress. On the truthlikeness account$_P$, for example, the fact that widespread disagreement about a philosophical thesis undermines philosophers' justification for that thesis does not in any way prevent the acceptance of the thesis from constituting progress.

With that said, however, *any* account of progress will have to deal with a different issue related to disagreement, viz. how to determine whether an episode is progressive when only some of the members of the philosophical community undergo the requisite kind of cognitive improvement. For example, is there philosophical progress on the truthlikeness account$_P$ when one segment of the philosophical community adopts a more truthlike theory while another segment adopts a less truthlike theory? Presumably, the answer to such a question depends on the relative sizes of the segments (in addition to the extent to which the truthlikeness of the respective theories changes), but how exactly would it do so? Such questions remain unanswered as of yet, for philosophical progress as well as for scientific progress.

Regardless of how we answer such questions, however, it's clear from the above discussion that the connection between convergence and progress will be rather more nuanced than it has been assumed to be thus far. For example, note that on the truthlikeness account$_P$ envisioned above, philosophical progress might come by way of enlarging the proportions of the community that accept more truthlike theories. Importantly, then, progress might occur without convergence on a single answer, and even alongside divergence (i.e., increased disagreement over time). This will be the case when, for example, a theory T_1 that was previously unanimously accepted is challenged by a more truthlike theory T_2 that becomes accepted by a relatively small minority, while the majority still accepts T_1. In that case, a plausible truthlikeness account$_P$ would imply that there is progress since the average truthlikeness of accepted theories, weighed by the proportion of advocates, increases over time—even if this is accompanied by increased disagreement within the philosophical community. (Similarly for other accounts, at least in so far as they do not impose a justification requirement on philosophical progress.) Given this, it is clearly a mistake, on most accounts of philosophical progress, to infer directly from the presence of philosophical disagreement (and the lack of convergence) to a lack of philosophical progress.

4.3 | Tools to further develop existing accounts

A third set of lessons concerns the ways in which seeing existing proposals about the nature of philosophical progress through the lens of the accounts formulated in §3.3 helps to reveal potential refinements and improvements for these proposals. Chalmers' account, for example, is underdeveloped in comparison with accounts of scientific progress. Although Chalmers emphasizes that he is a "pluralist about philosophical progress", he primarily focuses on one "form" of progress, viz. "progress towards the truth" (Chalmers, 2015, 14). Chalmers admits sympathy with the view that progress towards the truth has "a certain primacy among the forms of philosophical progress"

(Chalmers, 2015, 14), raising questions of whether the other philosophical successes he mentions (e.g., developing new methods) are best thought of as *constituting* (rather than promoting) *cognitive* progress.

Regarding the form of progress that is Chalmers' primary focus, it's unclear whether his view is closer to the epistemic account$_P$ or the truthlikeness account$_P$. Some of Chalmers' formulations, e.g., "progress toward the truth is one form of philosophical progress" and "attaining the truth is the primary aim at least of many parts of philosophy" (Chalmers, 2015, 14) appear to be endorsements of a 'pluralist' version of the truthlikeness account$_P$. However, Chalmers also says that "convergence goes along with increases in knowledge", and that "agreement is required for [collective] knowledge" (Chalmers, 2015, 14-15), which in turns serves as the backdrop for an extended discussion of disagreement among philosophers and the extent to which it undermines philosophical progress (Chalmers, 2015, 15-16). This emphasis on the importance of collective knowledge for philosophical progress suggests that Chalmers has something like the epistemic account$_P$ in mind (cf. Cappelen, 2017, 69-73). As we discussed above, peer disagreement among philosophers may affect truthlikeness and epistemic accounts$_P$ quite differently, depending on the theory of epistemic justification with which the account is paired, so one must 'pick a lane' in order to fruitfully pursue the questions on which Chalmers focuses.

Our framework also suggests ways in which Stoljar's (2017) account might be further fleshed out. In his book-length treatment of the topic, progress is simply defined as answering philosophical questions or 'suitably related' questions. For Stoljar (2017, 11, n7), a philosophical question is simply a problem, e.g., a 'boundary problem' (see §2.2). In this respect, Stoljar's account resembles the problem-solving account$_P$. However, Stoljar (2017, 22) also emphasizes that to aim to answer these questions is to have *epistemic* aims, and that philosophical progress is *epistemic* progress. While Stoljar leaves open which particular types of epistemic achievement (e.g., knowledge, justified belief, certainty) should be used to characterize the epistemic aim in question, he opts to focus on knowledge in particular (Stoljar, 2017, 22). To solve a problem, then, is for Stoljar something like coming to have knowledge of (alternatively: justified belief in, certainty of) the problem's solution.

Accordingly, it may be valuable to view Stoljar's account as—or compare it with—a hybrid of the problem-solving account$_P$ and the epistemic account$_P$. Such a hybrid account would have in common with the problem-solving account$_P$ not only the idea that to make progress is to solve problems, but also the idea that solving problems of different kinds might contribute differently to progress. At the same time, such an account could make sense of the idea that making philosophical progress is a genuine epistemic achievement by making knowledge accumulation necessary for progress. Conceiving of the account in this way is valuable because it highlights some resources on which the account might draw in order to deal with potential difficulties and fill in further details.

To see this, consider some questions which Stoljar's account leaves unanswered. For example, what if the philosophical problem that is presented and subsequently solved is itself deeply confused, e.g., because it rests on a false presupposition?[26] In that case, does answering it still count as progressive (to the same degree)? Even for non-confused questions, does answering any such question count as equally progressive? Plausible verdicts on these issues are provided by the hybrid account suggested above. Such an account can draw upon the epistemic account$_P$ and rule that whether, and the extent to which, a given answer is progressive depends on whether, and the extent to which, it adds to what is already known in philosophy. Since deeply confused questions typically result in false answers, answering them typically does not constitute progress. For

non-confused questions, some answers will constitute more progress than others depending on how much knowledge the answers bring us.[27]

Of course, the fact that Chalmers' and Stoljar's views about philosophical progress do not neatly fit within the framework of accounts outlined in §3.3, and neglect potentially useful resources, does not show that these views are mistaken. We aren't arguing that a convincing account of philosophical progress must be a counterpart of one of the existing accounts of scientific progress, or must draw upon the machinery developed in that context; after all, these accounts could all be mistaken. Instead, we wish to emphasize two points. First, a comparison of extant views of philosophical progress with those outlined in §3.3 highlights various ways in which the former are in need of further fleshing out. The comparison is thus productive in that it both prompts defenders of these views to sharpen their views and arguments, and provides them the resources with which to do so. Second, since any meaningful quantitative comparison between the amounts of progress in science and philosophy requires a common measure of progress, any radical departure from the accounts of philosophical progress outlined in §3.3 would either require one to give up on such quantitative comparisons, or commit to a similarly radical departure from extant accounts of scientific progress. Thus, perhaps surprisingly, it becomes incumbent on those departing from the accounts of philosophical progress outlined in §3.3, yet still seeking to make quantitative comparisons between the prevalence of scientific and philosophical progress, to formulate and defend an analogous account of scientific progress.

4.4 | The prevalence of philosophical progress

A final set of lessons concerns the prevalence of philosophical progress, i.e., which position on the pessimism-optimism spectrum is correct. As we have noted, any sensible discussion of whether, or the extent to which, philosophy makes progress must presuppose some account of the nature of philosophical progress. With such an account in hand, we can spell out what exactly pessimism and optimism (of various degrees of darkness and brightness) would amount to in terms that are transparent to all parties to the debate.

Let's start by explicitly laying out some of the optimistic and pessimistic positions that can be framed in terms of these accounts. Given a (non-hybrid, non-pluralistic) truthlikeness account$_P$, optimism about philosophical progress would roughly amount to the claim that the theories endorsed by the philosophical community are becoming (much) more truthlike on average, or that the rate of increase in truthlikeness is roughly equal to or greater than the corresponding rate in the natural sciences. Pessimism, by contrast, would on the truthlikeness account$_P$ roughly amount to the claim that the theories endorsed by the philosophical community are *not* becoming (much) more truthlike, or that the rate of increase in truthlikeness is (much) less than the corresponding rate in the natural sciences. Analogous formulations will apply to the other accounts of philosophical progress spelled out above (§3.3), including pluralistic and hybrid accounts.

This has important implications for how the debate between optimists and pessimists ought to proceed. On the one hand, if and to the extent that the parties to this debate discover that they agree on an account of philosophical progress—the truthlikeness account$_P$, say—then their discussions would benefit from debating the issue in terms of whether various past or current developments did increase or are currently increasing the truthlikeness of accepted philosophical theories. On the other hand, if and to the extent that the parties to the pessimism-optimism debate do *not* agree on an account of philosophical progress, then this disagreement should be made explicit so as to prevent these parties from talking past each other. Moreover, in that case, optimists

and pessimists ought to devote at least part of their time debating the merits of their respective accounts of the nature of philosophical progress, in service of determining who is right concerning the prevalence of such progress.

One might worry, however, that the framework we have developed does not provide an even playing field in which these debates can be conducted. In particular, one might worry that the accounts of philosophical progress we have outlined make optimism in one form or another almost trivially true.[28] After all, one might think, don't all these accounts entail that most or all of the time, someone will somewhere be making progress by, e.g., solving some problems or slightly increasing the truthlikeness of their theories? However, even if one answers this question in the positive, it need not rule out a very dark form of pessimism. Dark pessimists need not subscribe to what we might call *universal pessimism*, which holds that on every single topic within the discipline, we are either regressing or 'flatlining' (i.e., not progressing or regressing). Rather, they might argue for what we might call *net pessimism*, according to which the (possibly weighted) balance of progress and regress across different topics is zero, or even significantly below zero. According to this type of dark pessimism, there may be progress in some philosophical areas some of the time but this progress is balanced out or even outweighed by regress elsewhere or at other times, such that the net effect is that overall there is no net progress, and there may even be net *regress*.

We take dark net pessimism to be very much a live, and yet disturbing, possibility. It is disturbing because, if shown to be true, it would (arguably) be hard to justify devoting society's resources to philosophical research. And it is live because, in contrast to universal pessimism, even very dark forms of net pessimism cannot be refuted simply by pointing to allegedly uncontroversial examples of philosophical progress, such as Lewis's demonstration that the probability of a conditional, $P(A \rightarrow B)$ cannot generally be equated with the corresponding conditional probability, $P(B|A)$ (Lewis, 1976). Even assuming that this is a case of (some) progress (Cappelen, 2017; Chalmers, 2015), it would show only that there has been progress on this particular topic, thus refuting universal pessimism. It would not, by contrast, show that there has been net progress in philosophy since this development could be outweighed by regress on other topics. To evaluate net pessimism thus requires a kind of holistic perspective on the developments in the entire discipline, as opposed to a piecemeal approach in which we consider individual developments in isolation.

Now, one might still have a lingering sense that our approach to philosophical progress, by drawing upon the framework in which analogous debates about scientific progress take place, somehow stacks the deck in favor of optimism. After all, accounts of scientific progress were developed in order to capture and quantify something that most philosophers of science have assumed to be pervasive, viz. scientific progress. The worry, then, is that by extending these accounts into the philosophical domain we bring with us an unwarranted presumption that progress is pervasive, thereby excluding pessimism as a possibility from the outset.

However, we don't see any reason to think that when we utilize the machinery provided by these accounts we are thereby making any presumption in favor of optimism. On the contrary, since the accounts of scientific progress from which we have taken our cue were clearly not designed to entail or suggest any specific position on the pessimism-optimism spectrum about *philosophical* progress, our approach is particularly well placed to ensure that we don't prejudge any issues regarding the latter. By contrast, had we built accounts of philosophical progress from scratch based on our prior ideas about what might constitute it, there would have been an inevitable danger of building into the notion of philosophical progress precisely the activities in which philosophers commonly engage (e.g., making distinctions, providing counterexamples, raising questions). Such an approach thus clearly risks stacking the deck heavily in favor of optimism. In

comparison, our approach in effect uses the debate about scientific progress as a comparatively neutral 'testing ground' for our ideas about cognitive progress in general, which can subsequently be applied to philosophical progress in particular.[29]

5 | CONCLUDING REMARKS

As one would expect, philosophers care deeply about whether their discipline makes progress—and if so, how much. On the one hand, to discover that philosophy has made no progress, or very little as compared to other disciplines, is to discover that our efforts have amounted to little or nothing. Moreover, funding of philosophical research would likely be brought into question. On the other hand, diagnosing a lack of philosophical progress might catalyse a vital and radical change in philosophical methodology, e.g., towards incorporating methods from other, more progressive, disciplines. Given these high stakes, it is perhaps not surprising that most discussions of philosophical progress are more concerned with arguing for various forms of pessimism and optimism about philosophical progress than with formulating and motivating an account of what philosophical progress would be. And yet it is clear that the question of whether, and to what extent, philosophy makes progress cannot be sensibly addressed without first offering an account of what philosophical progress is.

This paper has been an extended attempt to begin to rectify this unfortunate situation. Our aim has been to formulate several detailed accounts of what philosophical progress might be, along with a framework of distinctions, concepts, and observations within which these accounts can be fruitfully understood, compared and evaluated. Motivated by the fact that progress in philosophy is frequently compared to scientific progress, our approach has been to start by examining the comparatively mature philosophical debate about scientific progress, gleaning from it various lessons for the burgeoning debate about philosophical progress, and four detailed accounts of what philosophical progress would be (from which hybrid and pluralist accounts can also be built). It is our hope that this offers a more promising way forward for debates about the prevalence of philosophical progress.[30]

ENDNOTES

[1] The latter has recently become an important topic in its own right (see, e.g., Cappelen, 2012; Cappelen et al., 2016; Daly, 2015; Eder et al., 2020; Knobe & Nichols, 2008; Williamson, 2007).

[2] See *inter alia* Bengson et al., 2019; Brock, 2017; Cappelen, 2017; Chalmers, 2015; Frances, 2017; Gutting, 2016; van Inwagen, 2004; Jones, 2017; Kamber, 2017; McKenzie, 2020; Rapaport, 1982; Rescher, 2014; Russell, 1912; and Stoljar, 2017. Moody (1986) calls the analogy into question, arguing that philosophy makes progress of a different kind.

[3] These conditions are related in that collective convergence presumably consists in *increasing* agreement over time.

[4] See Cappelen (2017) for an extended critique of Bourget and Chalmers' (2014) methodology and of Chalmers' (2015) leveraging of their results into an argument for pessimism.

[5] See also Dietrich, 2011; Shand, 2017; and Slezak, 2018.

[6] That peer disagreement undermines justification and therefore knowledge is accepted by many epistemologists (see, e.g., Christensen, 2007; Christensen & Lackey, 2013; Matheson, 2014), but may be rejected by others, e.g., epistemic externalists who eschew internalistic justification requirements on knowledge (see, e.g., Hawthorne & Srinivasan, 2013; Lasonen-Aarnio, 2014). For a discussion of how disagreement between philosophers in particular undermines knowledge, see Goldberg, 2013; Beebee, 2018; and Barnett, 2019; although see Kelly, 2016, 375 for a strongly dissenting view.

[7] Tim Maudlin puts the point well in an interview with *Scientific American*: "It is not that there isn't convergence, it is that the outliers who do not converge get much more attention than the great mass of convergers, who don't particularly stand out." (https://blogs.scientificamerican.com/cross-check/philosophy-has-made-plenty-of-progress/, accessed: September 11, 2020). Along similar lines, Goldstein (2014, 14) contends that "[p]hilosophical progress is invisible because it is incorporated into our points of view. What was tortuously secured by complex argument becomes widely shared intuition, so obvious that we forget its provenance. We don't see it, because we see with it." Finally, Stoljar (2017, 73) points out that "Once a distinction is drawn or a development is made it can seem obvious. But that should not blind us to how *un*obvious things were prior to those developments."

[8] For references see footnote 2.

[9] Here and in what follows, the term 'theory' should be understood broadly so as to include any type of representational device that is capable of satisfying the conditions a given account of progress lays down; thus, in the case of the truthlikeness account, a 'theory' should be understood so broadly as to include anything that could be truthlike according one's definition of truthlikeness.

[10] This is Laudan's terminology; a scientific problem corresponds roughly to a Kuhnian *puzzle*.

[11] Again, this is Laudan's terminology; a research tradition corresponds roughly to what Kuhn initially called a *paradigm* and later came to call an *interdisciplinary matrix* (Kuhn, 1974).

[12] In this respect, Bird's account resembles the naïve view and seemingly inherits the problem described above regarding progress from one false theory to another. Bird (2007, 76-78) provides a strategy for dealing with this problem that co-opts machinery from the truthlikeness account; although Cevolani and Tombolo (2013) and Niiniluoto (2014) argue that it does not succeed.

[13] For defenses of a reductionist account of understanding, see, e.g., Grimm, 2006; Kelp, 2015; Sliwa, 2015, and Khalifa, 2017. For prominent arguments against such accounts, see, e.g., Elgin, 2007; Kvanvig, 2003; Pritchard, 2009, and Hills, 2015.

[14] See Strevens (2008, ch. 8, 2017) for a detailed account of how idealizations provide understanding in this way.

[15] On this point, see Rowbottom, 2008.

[16] Bird (2010, 2014, 2019) argues for the latter version of the epistemic account; Gilbert (2000) and Ross (2020) give a more general argument that the scientific community is the agent whose epistemic states determine whether we make scientific progress.

[17] Bird (2007, 84) and Dellsén (2016, 77-78) refer to the amount of progress made over a given period of time as the 'rate' of progress.

[18] Gutting (2016, 312) compares the failure of the tripartite theory in Gettier cases with the failure of the ideal gas law $PV = nRT$ in non-ideal circumstances. In each case we have a theory that, although false, "gives correct results for almost any case that we are likely to encounter in ordinary life [...] but breaks down when further variables cannot be ignored."

[19] For an argument to the contrary see Ballantyne, 2014. For a (to our minds compelling) response see Keller, 2015.

[20] In a recent discussion of the appropriate methodology for philosophy, Bengson et al. (2019, 182) propose a 'measure' of philosophical progress in terms of 'theoretical understanding.' However, Bengson et al.'s measure of progress differs markedly from Dellsén's noetic account since they focus on *theoretical* understanding, whereas Dellsén focuses on *objectual* understanding.

[21] The distinction between what constitutes and promotes progress might also shed light on the stark divide between Stoljar's (2017) focus on answering questions and Justin Weinberg's suggestion that that "progress is not mainly in convergence on answers to philosophical questions, but in the creation of the questions themselves." (See https://philosopherscocoon.typepad.com/blog/2020/04/has-philosophy-made-progress.html and http://dailynous.com/2017/08/23/intellectual-achievement-creating-questions/, both accessed: September 11, 2020). There is surely something valuable about coming up with better philosophical questions, but a respondent equipped with the distinction between promoting and constituting philosophical progress might well suggest that the development of new and better questions merely promotes progress—which explains why Weinberg's suggestion rings true to some extent—but nevertheless does not constitute progress.

[22] For references on this point, see footnote 6.

[23] To be sure, proponents of *sui generis* collective knowledge sometimes argue that it is possible for a collective to know that P even when none of its members know that P. However, these are rare, exceptional cases; moreover,

it seems plausible that such cases do not arise when a substantial proportion of the members actively *disagree* with the alleged attitude of the collective agent.

[24] For accounts in this vicinity, see, e.g., Hawthorne & Srinivasan, 2013 and Lasonen-Aarnio, 2014.

[25] With that said, one might also suggest that the belief would become unjustified due to the fact that the process of retaining such a belief in the face of disagreement might be unreliable. Our aim here is not to adjudicate between these ways of spelling out the implications of a simple process reliabilism for peer disagreement, but rather to note that proponents of the epistemic account$_P$ have some choices regarding which way to go.

[26] Stoljar does begin to answer this question in so far as he requires that boundary problems be "well motivated from an empirical or philosophical point of view" (Stoljar, 2017, 73), but says nothing about the conditions under which this will be the case.

[27] Although there are difficult questions about how to measure amounts of knowledge, answering such questions is a task that proponents of the epistemic account must undertake with anyway. As alluded to in footnote 12, one way to do this is to co-opt the mechanism of the truthlikeness account, which is explicitly designed to provide the verdict that adding a logically stronger theory constitutes more progress than adding a weaker one (see Bird, 2007, 76-78).

[28] Of course, this might not be considered a problem by those who take moderate optimism to be very plausible *prima facie*. It would count in favor of a framework for discussing philosophical progress, however, if it could at least explain the attraction of a darkly pessimist position by showing how it would follow from assumptions that might be widely accepted among pessimists.

[29] On the other hand, if one thinks that philosophy is entirely unlike science, one might worry that developing accounts of philosophical progress inspired by accounts of scientific progress stacks the deck in favor of *pessimism* by falsely presupposing that there is continuity between the disciplines, and as a result erroneously requiring philosophy to make the same kind of progress that science does—and then criticizing it when it inevitably fails to do so. To this, we reiterate (a) that we are taking as a working assumption that we can advance the debate about philosophical progress by looking to the literature on scientific progress, and (b) that without a unified account across science and philosophy, we cannot meaningfully compare the prevalence of progress made in each.

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